

TECHNICAL MEMORANDUM

TO: Michael Kuntz, Washington State Department of Ecology

FROM: Piper Roelen, P.E.

DATE: August 8, 2013

RE: **SOIL CONFIRMATION SAMPLING PLAN – REVISION NO. 1**
FORMER HEAVENS SUPPLY COMPANY SITE (VCP PROJECT NO. NW1698)
7009 GREENWOOD AVENUE NORTH
SEATTLE, WASHINGTON

This technical memorandum describes the proposed soil confirmation sampling plan for the former Heavens Supply Company property located at 7009 Greenwood Avenue North in Seattle, Washington and at confirmed adjacent and impacted property (Site; Figure 1). Cleanup of this Site is currently being conducted under the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP; VCP Project No. NW1698). Tetrachloroethene (PCE) and related breakdown products are the primary contaminants of concern at the Site. This plan was revised per comments received from Ecology on August 8, 2013 (Ecology 2013).

INTRODUCTION

Electrical resistance heating (ERH), supplemented with soil vapor extraction (SVE) and a focused remedial excavation, was determined to be the preferred remedial alternative for the Site as described in the cleanup action plan (CAP; Landau Associates 2012a) as approved by Ecology (2012). A focused remedial excavation was completed on the Smith property in February 2013 and the ERH and SVE systems were operated from February to late June 2013. Based on a delivery of approximately 60 percent of the design energy to the ground, heating of the design treatment volume to an average temperature of over 97° Celsius, and a significant observed decline in PCE concentrations in extracted soil vapor from the system, Landau Associates performed an interim soil monitoring event in late June to early July 2013 per procedures described in the CAP and Engineering Design Report (EDR; Landau Associates 2012b).

The interim soil monitoring event included drilling 15 soil borings at selected locations around the Site (10 on the Heavens Supply property, 2 on the southern end of the Smith property, 2 in Greenwood Avenue North, and 1 in North 70th Street). Borings were drilled to depths of 20 to 30 feet (ft) below ground surface (BGS) depending on the depths of pre-cleanup contamination, and samples were collected from three depth intervals in each boring. As described in the CAP, the results from the soil monitoring event were intended to be used to “make decisions regarding whether delivery of electricity to the ERH system can be discontinued in certain areas of the Site and/or focused in other areas where additional energy and heat are required.” However, laboratory results for all 45 of the soil samples

collected and analyzed during the monitoring event identified no PCE or other volatile organic contaminant (VOC) concentrations in soil above the Site-specific cleanup levels in any of the samples. Results for 42 of the 45 samples analyzed identified no VOC concentrations (including PCE) above the laboratory reporting limits. Boring locations and analytical results are summarized on Figures 2a and 2b.

Based on completion of the focused remedial excavation on the Smith property and the results of the interim soil monitoring event, which indicate that ERH and SVE have successfully reduced PCE (and other VOC) concentrations in soil to below the Site-specific cleanup levels, active heating of Site soils with the ERH system was discontinued on July 12, 2013. Vapor extraction through the SVE system and perimeter ERH vapor recovery wells is still in operation to date.

CONFIRMATION SAMPLING PLAN

As indicated in the CAP and EDR, after completion of ERH and SVE operation (i.e., when Site monitoring data indicate cleanup objectives have been met), confirmation soil sampling will be conducted according to a soil confirmation sampling plan that is submitted to and approved by Ecology. Based on the interim soil sampling results, it appears that operation of the ERH and SVE systems is no longer necessary for cleanup of VOCs in Site soils. Therefore, we proposed to perform soil confirmation sampling at this time per the following:

- Because the interim soil sampling results all indicated that VOC concentrations in soil were below the Site-specific cleanup levels, we propose that these sampling locations and results be considered final confirmation sampling locations/results.
- We propose to drill an additional 12 soil borings (8 within the Heavens Supply property, 3 in Greenwood Avenue North, and 1 in North 70th Street) to supplement the interim sampling locations so that, as indicated in the CAP, the final distribution of drilling and confirmation sampling locations will be on “roughly 40-ft grid spacing across the Site.” Additional confirmation sampling locations were also added per Ecology’s August 8 comments. Figure 3 shows the location of the interim soil sampling locations and the locations of the proposed confirmation sampling locations. These locations are approximate and subject to change or adjustment based on the presences of aboveground or below ground utilities, ERH/SVE equipment, or other obstructions (e.g., trees, fence posts).
- Borings will be drilled to depths of 20 to 30 ft BGS depending on the specific area of the Site (i.e., how deep contamination was identified during the remedial investigation and subsequent investigations). Samples will be collected from three approximately evenly spaced vertical depth intervals from each boring.
- Drilling, soil sampling, and laboratory analysis will be performed per the procedures and protocols identified in the EDR and appended Sampling and Analysis Plan.

Based on Ecology’s review and feedback (Ecology 2013), we assume that this plan is acceptable to Ecology. Accordingly, we have scheduled drilling and confirmation sampling to begin on August 12.

PMR/ccy

REFERENCES

Ecology. 2012. Letter: *Voluntary Cleanup Site No. NW1698-7009 Greenwood Avenue/Approval of Cleanup Action Plan (CAP) of November 7, 2012*. From Michael Kuntz, P.G., P.H.G., HQ-Toxics Cleanup Program, Washington State Department of Ecology, to Sue Wollenberg, JANA LLC. November 16.

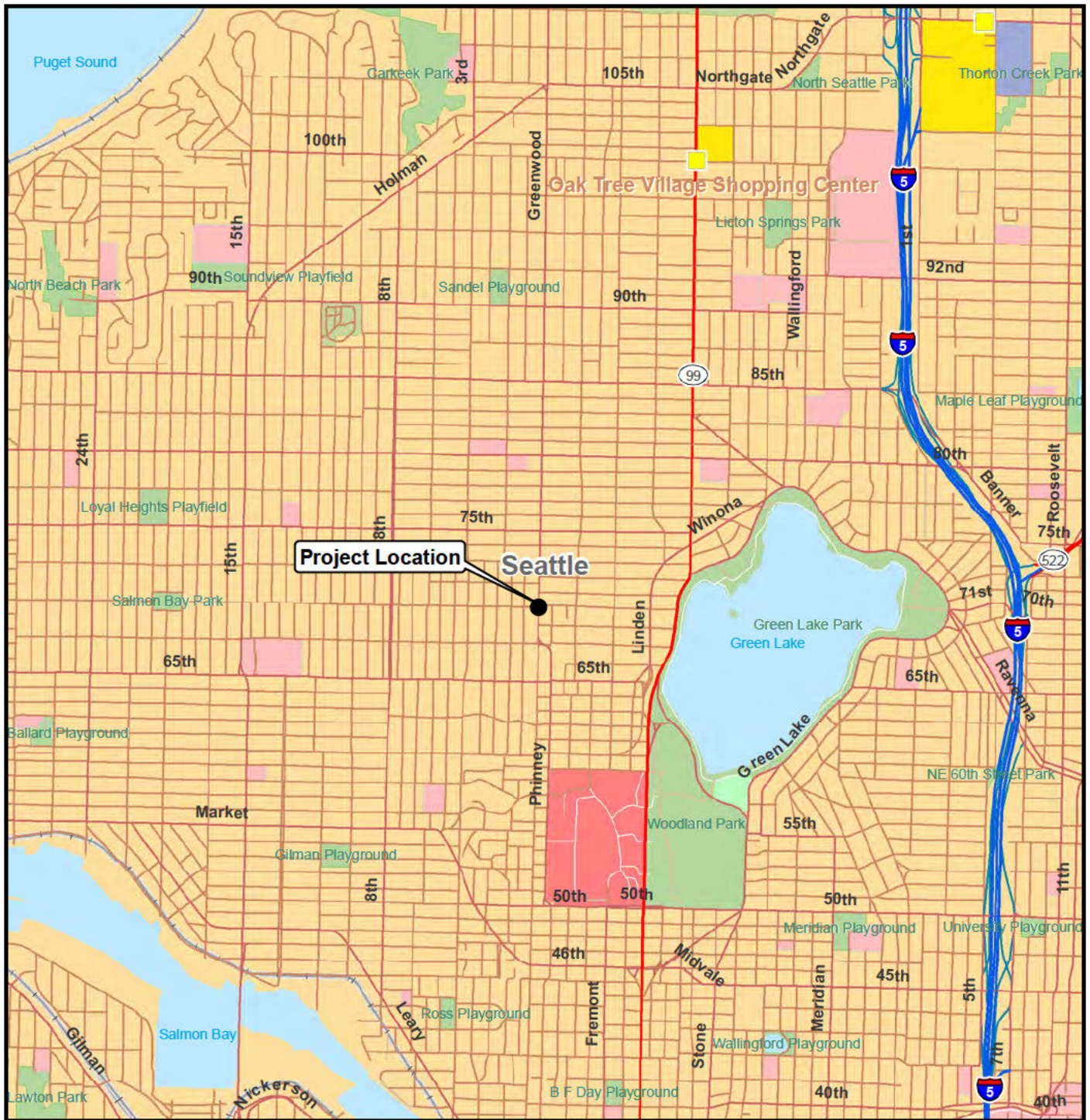
Ecology. 2013. Email message from Mike Kuntz, Site Manager, Washington Department of Ecology, to Piper Roelen, Associate, Landau Associates. Re: *NW 1698- 7009 Greenwood Ave – Proposed Conformational Soil Sampling Plan- Ecology review*. August 8.

Landau Associates. 2012a. *Final Cleanup Action Plan (Revision 1), Former Heavens Supply Company Property, 7009 Greenwood Avenue North, Seattle, Washington*. November 7.

Landau Associates. 2012b. *Engineering Design Report, Former Heavens Supply Company Property, 7009 Greenwood Avenue North, Heavens Supply Company, Seattle, Washington*. December 27.

ATTACHMENTS

- Figure 1: Vicinity Map
- Figure 2a: Onsite Soil Sampling Results
- Figure 2b: Offsite Soil Sampling Results
- Figure 3: Soil Confirmation Sampling Locations



Data Source: ESRI 2008



Heavens Supply Company
Seattle, Washington

Vicinity Map

Figure
1

Y:\Projects\583002\050\MapDocs\056\Fig2A-SamplingResultsOnsite.mxd 7/30/2013 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

- Interim/Final Sampling Location
- RI Soil Boring Location
- Extent of PCE in Soil Above 50 µg/kg Cleanup Standard From Remedial Investigation
- ▭ Heavens Supply Property Boundary
- - - Residential Property
- Buildings

IB-39	Sample ID with Sample Depth and PCE Concentration in µg/kg - June/July 2013
6-8' <10	
GP-3	Sample ID with Sample Depth and PCE Concentration in µg/kg - Previous Investigation
2' 84	

ND/< Not Detected Above Laboratory Reporting Limit
J PCE Positively Detected, Concentration is Approximate



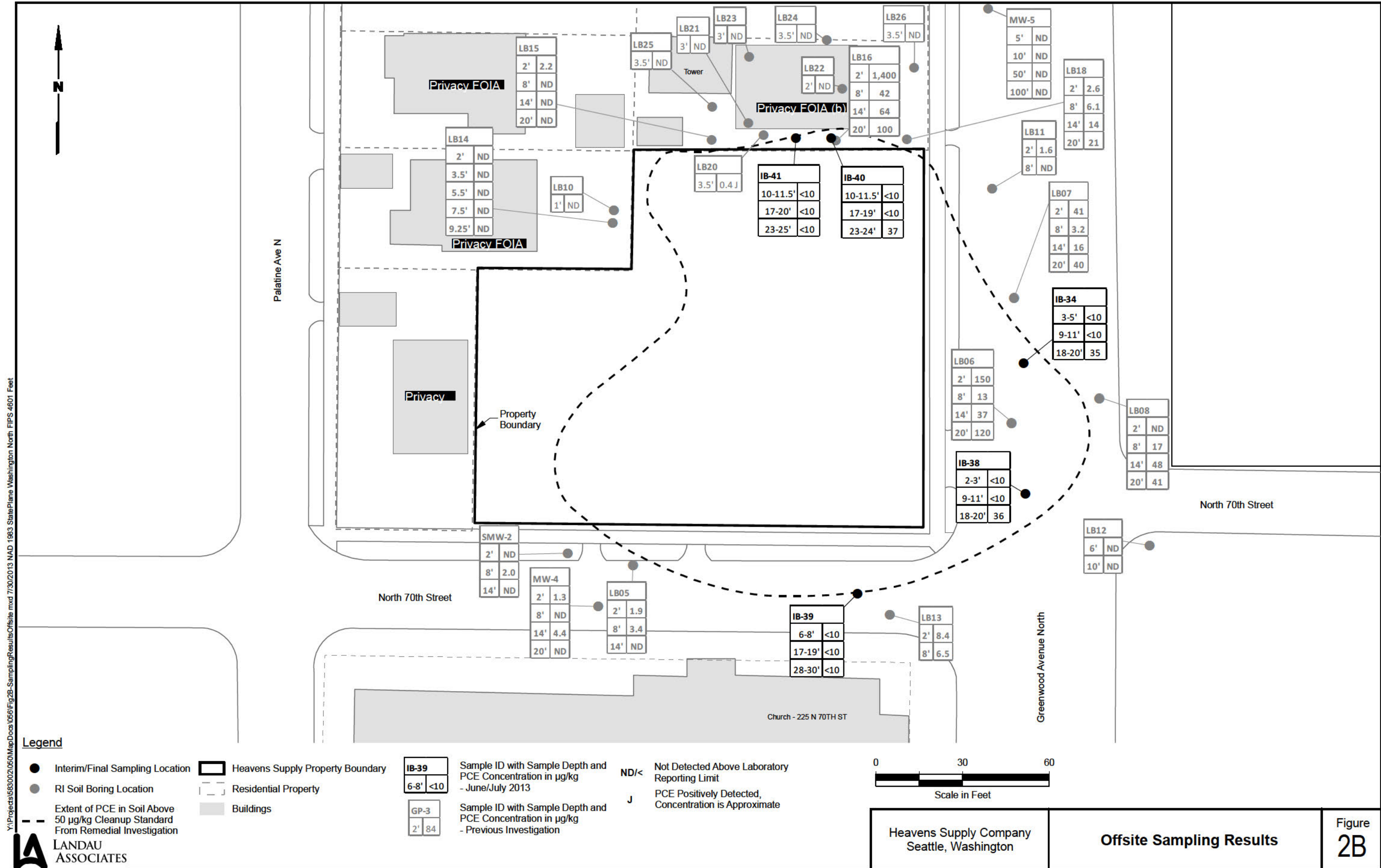
Heavens Supply Company
Seattle, Washington

Onsite Soil Sampling Results

Figure
2A



Y:\Projects\583002\050\MapDocs\056\Fig2B-SamplingResults\Offsite.mxd 7/30/2013 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Y:\Projects\583002\050\MapDocs\056\Fig3-SoilConfirmationSamplingLocations.mxd 8/8/2013 NAD 1983 StatePlane Washington North FIPS 4601 Feet

